Original Article

Old People in Pain: A Comparative Study

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Abstract
To investigate the prevalence of pain in older people (75+), compare those in pain to those without regarding demographics, social network, functional limitations, fatigue, sleeping problems, depressed mood and quality of life (QOL), and identify variables associated with pain, a cross-sectional, prospective survey was conducted in an age-stratified sample of 4,093 people aged 75–105 years old. Those reporting pain (n = 1,654) were compared with those who did not (n = 2,439). Pain was more common with higher age, as were all complaints among those in pain and among those without, except sleeping problems. Lower QOL was found with higher age, as well as with pain. Pain was found to be associated with functional limitations, fatigue, sleeping problems, depressed mood, and QOL. These data highlight the importance of identifying old people in pain. Those who are older and those affected by pain are at greater risk of also being troubled by other problems, such as functional limitations and lowered QOL.   J Pain Symptom Manage 2003;26:625–636. © 2003 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

Introduction

Pain is supposed to be common among older people,[1] although this has not been investigated often among the oldest old. The increasing number of older people, especially the oldest old, calls for a broader understanding of the impact of pain on daily life and quality of life (QOL). This knowledge is needed to provide care that increases their ability to manage daily living and also to improve their QOL.

Few studies have evaluated pain among the old (age 75–84 years) and the oldest old (85 years and above). It is, therefore, difficult to draw any conclusions about the prevalence of pain and other problems affecting their daily living. The areas of concern when studying older people—demographics, social network, functional health status, fatigue, depression, and QOL—are similar to those that appear to be important among younger people in pain.[2–4]

In general, pain is a common problem among older people[1] and some studies suggest that it tends to increase with increasing age.[5,6] Helme and Gibson[1] reviewed the differences in pain prevalence with age and identified a prevalence of 29–86% among those aged 75–84 and 40–79% among those aged 85 years and above. However, studies about pain prevalence generally tend to have no or sparse representation of the oldest old (85+), giving weak knowledge about pain among these people.

Whether pain increases or decreases with age differs among studies of older people.[1,7] Possible explanations for the different conclusions are that older people tend to not rate their pain fully, that they sometimes view pain as part of normal aging and thus do not report it,[7,8] or that different methods were used to measure pain. Brattberg et al.[9] found a slight decrease in the prevalence of pain (measured regarding duration and location using two questionnaires: pain sensation intensity and how much the pain affected the individual) after the age of 65 ($n = 1,009$; age 18–84). Grimby et al.[10] found no increase in pain (measured with three questions, yes/no response, assessing pain in back, joints, or shoulders extremities) with age, but an increase in use of minor analgesics ($n = 1800$; age 75 years and above). Brochet et al.[6] found the prevalence of pain (measured with an unspecified questionnaire with several questions, for example, about intensity, duration, location, and characteristic) to be 71.5% ($n = 741$) in people over 65 years of age; there was a slight increase in prevalence with increased age, especially among women. This study also showed a prevalence of 32.9% for people who reported continuous pain (daily and for more than six months), the most common pain locations being arms, legs, and joints.[6] Brattberg et al.[5] found an overall pain prevalence (measured with a list of symptoms and a three-graded response scale) of 72.8%, with 47.1% reporting pain in two or more locations ($n = 537$, aged 77 years and above). They also found an increase in pain prevalence with age in men, whereas among women the prevalence decreased.[5] Thus, the findings are not consistent as to whether the prevalence of pain is higher in older old age groups than in younger old people.

Other problems may also have a major impact on daily life and QOL among the old and the oldest old. For instance, functional limitations, fatigue, sleeping problems, and depression/depressed mood are common complaints in old age.[4,11] When also affected by pain, these problems may have a major impact on daily life.[12–17] Despite this, the relationship between pain and these comorbidities has not been well studied among older people, and especially not among the oldest old. Ross and Crook[16] interviewed older people ($n = 66$; mean age 79, range 64–99) and found that pain was associated with functional limitations, depression, impaired sleep, and low satisfaction with life. Scudds and Robertson[17] found that those reporting musculoskeletal pain were three times more likely to have functional limitations ($n = 887$; age 65–94). The impact of pain on functional health status may lead to the avoidance of some movements and hence even more diminished functional abilities. Thus, complaints that seem to be interrelated with pain need to be considered, not only in research but also in the care of older people. Given the sparse knowledge about older people, especially the oldest old (85+), a study that includes a large share of the oldest old would be an important contribution to the knowledge base about people in pain. The aim of the present study was to investigate the prevalence of pain across age in older people (75 years and above) and to compare those in pain with those without regarding demographic data, social network, functional limitations, fatigue, sleeping problems, depressed mood, and quality of life. Further, the aim was to identify which of the above-mentioned variables were associated with pain.

Methods

Sample

This study comprised 4,093 people aged 75–105 years. The sample was divided into those reporting pain ($n = 1,654$) and those not reporting pain ($n = 2,439$). The sample ($n = 4,093$) was selected from a larger questionnaire study in southern Sweden, which assessed an age-stratified sample of people aged 75 years and above (75–79, $n = 2,500$; 80–84, $n = 2,500$; 85–89, $n = 2,000$; and 90+ years, $n = 1,500$). The stratification was made to ensure a large enough number of respondents living in sheltered housing or having home care help/help for daily living in the younger age groups. Data collection was performed in 2000–2001.

The sample included older people living in their ordinary homes, in nursing homes, group dwellings, or service apartments. Two reminders were sent. Of the total 8,500 questionnaires, 4,278 were returned in a usable form (mean age 83.7 years, SD 5.7, 61.6% women). Eighty-two were not in usable form because of missing data. The response rates in the age groups were 75–79: 60%, 80–84: 56%, 85–89: 48% and 90+:

42%. Two hundred fifty-five persons (3%) were missed (199 deceased, 56 address unknown), giving an overall response rate of 53%. Explanations were given (6%) for not participating: not having enough strength (1%), reporting dementia diseases (1%), or just not wanting to be part of the study (3%). Those that did not respond were significantly ($P < 0.005$) older (mean age 85.7, SD 6.1) and significantly ($P < 0.005$) more female (69.6%) than those who did participate. A total of 3,402 persons did not report any reason, and of those, 212 (6%) died within six months after the data collection was completed.

Of the 4,093 respondents, 1,654 reported pain (mean age: 84.6, SD 6.0, 65.1% women). In the total sample, 29.4% reported musculoskeletal pain and 22.4% reported other type of pain/unspecified pain (34% reported both musculoskeletal and other type of pain/unspecified pain). The study was approved by the Ethics Committee of the Medical Faculty at Lund University (LU 478-99).

Measures

The questionnaire contained questions about demographic data, living conditions, economic situation, social network, complaints, and quality of life (Tables 1–4). Social network was measured with questions about children, grandchildren and siblings, and having someone to trust. Pain (musculoskeletal pain, other pain), walking problems, mobility problems, fatigue, sleeping problems and depressed mood was measured with one overarching question, "Have you been troubled by one or more of the following symptoms for the last three months?," with four response alternatives for each one: "no, not at all," "yes, a little," "yes, rather much" and "yes, very much." These questions, also used in a study by Hellström and Hallberg,[18] were a modified version of questions from a study by Tibblin et al.,[19] which had as response alternatives yes/no. Those reporting "no pain" formed the "no pain group," and those reporting "little pain" or more (musculoskeletal pain and/or other type of pain) were included in the "pain group." Functional health status was assessed by the questions about walking problems and mobility problems, and by two questions about the need for help with activities in daily living (ADL), which were measured in two "dimensions:" personal activities in daily living (PADL)

and instrumental activities in daily living (IADL). PADL consisted of requiring help with personal hygiene, getting dressed, and food intake, while IADL consisted of requiring help with cleaning, shopping, and cooking.

Quality of life was assessed using Short Form Health Survey (SF-12[20]), which has twelve items covering eight areas, with one physical component summary score (PCS) and one mental component summary score (MCS). The same eight profiles/areas as in the Short Form-36[21] are obtained by SF-12. The scores in each area (PCS, MCS) are standardized to range between 0 (lowest QOL) and 100 (highest QOL), and both scales were transformed to have a mean of 50 and a standard deviation of 10 in a general population (general U.S. population). Norms (SF-12) for the general Swedish population aged 75 years and above are 40.3 (SD 11.6) for PCS and 51.5 (SD 11.0) for MCS.[22] The distribution of the sample was not described for those aged 75 years and above. The instrument is easy to administer and does not contain questions that emphasize work and is, therefore, more suitable for older people.[23]

Data Analysis

The results were analyzed and presented for the four age groups (Tables 1–4) and for those in pain and no pain. Demographic data, social network, pain, functional limitations, fatigue, sleeping problems, depressed mood, and quality of life (SF-12) were compared between the four age groups (among those in pain and those without pain) and between those in pain and those without (within age groups). When comparing pain (dichotomized) across age strata, the chi-square test for trend was used.[24] The chi-square test was used when comparing the groups regarding nominal data. Mann–Whitney U test (between age groups) and Kruskal–Wallis one-way analysis of variance test (within age groups, between those with and without pain) were used when comparing the groups for ordinal and interval data. As a post-hoc test to the Kruskal–Wallis one-way analysis of variance test, the Mann–Whitney U test was used. Due to multiple comparisons (four samples), a reduced *P*-value (Bonferroni method) of <0.008 was used to control for the risk of mass-significance.[25]

Multiple logistic regression analysis, forward stepwise method (likelihood ratio), was performed to detect variables associated with pain

Table 1
Description and Comparison Between the Four Age Groups and Those Reporting Pain and No Pain Regarding Demographic Data

	Age 75–79 (I) Pain n = 404 No Pain n = 723	Age 80–84 (II) Pain n = 490 No Pain n = 854	Age 85–89 (III) Pain n = 382 No Pain n = 506	Age 90+ (IV) Pain n = 378 No Pain n = 356	P-value Between Age Groups (Pain)	P-value Between Age Groups (No Pain)	P-value (Pain vs. No pain) Within Age Group I/II/III/IV
Age, mean (SD)							
Pain	77.5 (1.1)	82.0 (1.4)	86.9 (1.4)	93.3 (2.5)	-	-	0.2/0.3/0.1/0.3[a]
No pain	77.4 (1.1)	81.9 (1.4)	86.7 (1.3)	93.2 (2.5)			
Male/Female %							
Pain	41.8/58.2	40.4/59.6	33.5/66.5	21.7/78.3	<0.001[b] (C, E, F)	<0.001[b] (B-E)	0.2/0.2/0.4/0.008[b]
No pain	45.8/54.2	44.1/55.9	36.0/64.0	30.3/69.7			
Marital Status (Pain/No pain) %					<0.001[b]	<0.001[b]	0.03/0.4/0.9/0.02[b]
Married	55.4/55.6	41.0/44.7	27.0/27.9	8.5/14.9	A-F	A-F	
Unmarried	3.2/6.9	5.5/6.0	7.6/7.1	9.8/7.9			
Widowed	30.7/30.4	44.1/41.1	58.6/59.9	75.9/74.2			
Divorced	7.4/5.5	5.9/6.1	4.2/3.4	4.5/1.7			
Split Housing	3.0/1.5	3.5/2.1	2.6/1.8	1.3/1.4			
Living Conditions (Pain/No pain) %					<0.001[b]	<0.001[b]	0.6/0.3/0.002/0.02[b]
Own home	96.0/95.8	92.8/93.4	79.9/88.2	59.5/67.1	B-F	B-F	
Sheltered housing	3.7/3.0	6.7/5.3	18.3/11.3	39.9/31.7			
Economic Situation (Pain/No pain) %					0.2[c]	0.8[c]	0.01/0.006/0.2 < 0.001[a]
Very good	13.4/17.2	12.9/16.7	14.1/15.4	10.8/18.0			
Good	44.6/46.1	45.9/47.4	44.0/47.0	42.1/46.3			
Neither good nor poor	30.0/28.9	31.4/28.3	30.4/27.1	32.0/27.5			
Poor	8.2/5.4	7.3/5.2	8.4/6.7	11.6/6.5			
Very poor	3.2/1.2	2.0/1.1	2.4/2.2	2.6/1.7			

Significant differences between: A = I–II; B = I–III; C = I–IV; D = II–III; E = II–IV; F = III–IV.
Internal dropout between 0.2–1.8%.
[a] Mann–Whitney U test.
[b] Chi-square test.
[c] Kruskal–Wallis one-way analysis of variance test.

Table 2
Description and Comparison Between the Four Age Groups and Those Reporting Pain and No Pain Regarding Social Network

	Age 75–79 (I) Pain n = 404 No Pain n = 723	Age 80–84 (II) Pain n = 490 No Pain n = 854	Age 85–89 (III) Pain n = 382 No Pain n = 506	Age 90+ (IV) Pain n = 378 No Pain n = 356	P-value Between Age Groups (Pain)	P-value Between Age Groups (No Pain)	P-value (Pain vs. No pain) Within Age Group I/II/III/IV
Living Status (Pain/No pain) %					$<0.001^a$	$<0.001^a$	$0.4/0.6/0.4/0.02^a$
Together with someone	57.9/60.7	46.9/48.2	29.8/32.6	13.0/19.1	A-F	A-F	
Living alone	42.1/39.3	53.1/51.8	70.2/67.4	87.0/80.9			
Having children (Pain/No pain)%	85.9/85.6	85.9/87.0	85.6/83.6	81.5/82.3	0.3^a	0.2^a	$0.9/0.5/0.8/0.8^a$
Number of children (Pain/No pain) mean (SD)	2.3 (1.3)/2.3 (1.2)	2.3 (1.3)/2.3 (1.3)	2.4 (1.3)/2.2 (1.3)	2.2 (1.2)/2.3 (1.2)	0.4^b	0.6^b	$0.6/0.7/0.2/0.2^c$
Having grandchildren (Pain/No pain)%	79.7/79.1	78.8/80.8	80.4/80.0	76.2/78.7	0.6^a	0.5^a	$0.7/0.2/0.9/0.5^a$
Number of grandchildren (Pain/No pain) mean (SD)	4.7 (3.2)/4.5 (2.8)	4.8 (3.6)/4.7 (3.5)	4.9 (3.3)/4.7 (3.4)	4.7 (3.4)/4.7 (2.9)	0.8^b	0.6^b	$0.6/0.9/0.3/0.4^c$
Having siblings (Pain/No pain)%	69.6/76.1	70.2/67.9	62.3/63.0	50.8/46.6	$<0.001^a$ C-F	$<0.001^a$ A-C, E, F	$0.01/0.5/0.7/0.3^a$
Someone to trust (Pain/No pain)%	92.3/92.3	94.1/92.7	94.2/93.5	96.6/92.7	0.3^a	0.6^a	$0.6/0.9/0.6/0.5^a$
How many to trust (Pain/No pain)%					0.04^b	0.3^b	$0.01/0.7/0.5/0.6^c$
One person	25.7/21.0	18.0/18.9	18.1/21.1	17.7/18.3	A		
Two persons	21.8/19.5	23.1/23.0	25.9/24.1	27.5/27.8			
Three to five persons	31.9/34.7	37.6/33.3	35.3/33.6	39.7/32.0			
More than five persons	11.6/15.5	14.7/15.8	13.1/12.8	10.3/11.8			

Significant differences between: A = I–II; B = I–III; C = I–IV; D = II–III; E = II–IV; F = III–IV.
Internal dropout between 0.2–6.2%.
[a] Chi-square test.
[b] Kruskal–Wallis one-way analysis of variance test.
[c] Mann–Whitney U test.

Table 3

Description and Comparison Between the Four Age Groups and Those Reporting Pain and No Pain Regarding Functional Health Status

	Age 75–79 (I) Pain n = 404 No Pain n = 723	Age 80–84 (II) Pain n = 490 No Pain n = 854	Age 85–89 (III) Pain n = 382 No Pain n = 506	Age 90+ (IV) Pain n = 378 No Pain n = 356	P-value Between Age Groups (Pain)	P-value Between Age Groups (No Pain)	P-value (Pain vs. No pain) Within Age Group I/II/III/IV
Walking problems (Pain/No pain) %					<0.001[a]	<0.001[a]	<0.001/<0.001/<0.001/<0.001[b]
Yes, a little	36.9/13.8	34.7/19.3	35.6/28.7	27.2/26.7	A–F	A–F	
Yes, rather much	13.4/4.4	17.3/7.1	23.3/11.1	19.3/12.6			
Yes, very much	13.6/4.1	21.0/5.4	26.4/10.1	39.2/19.1			
Mobility problems (Pain/No pain) %					<0.001[a]	<0.001[a]	<0.001/<0.001/<0.001/<0.001[b]
Yes, a little	27.5/8.4	25.5/9.4	30.1/11.1	26.2/11.2	B, C, E, F	B–E	
Yes, rather much	9.7/3.9	14.1/2.9	13.4/5.1	13.5/6.5			
Yes, very much	9.2/2.5	12.0/3.4	16.8/5.9	28.8/10.1			
Help with PADL (Pain/No pain) %					<0.001[a]	<0.001[a]	<0.007/<0.001/<0.001/<0.001[b]
Yes, but not every week	1.0/0.7	2.9/1.1	2.4/2.0	3.2/5.6	A–F	A–F	
Yes, once a week	3.0/1.0	5.9/4.4	10.7/8.1	17.5/14.3			
Yes, several times a week	1.0/0.6	2.0/0.8	3.1/1.4	3.4/3.9			
Yes, every day	3.5/2.2	7.8/3.9	14.9/8.3	34.1/23.3			
Help with IADL (Pain/No pain) %					<0.001[a]	<0.001[a]	<0.001/<0.001/<0.001/<0.002[b]
Yes, but not every week	9.4/4.1	15.1/8.1	18.6/12.5	15.3/14.3	A–F	A–F	
Yes, once a week	4.5/2.1	6.7/6.6	15.2/11.1	18.3/13.5			
Yes, several times a week	2.7/0.6	3.9/1.6	6.0/2.8	6.9/5.9			
Yes, every day	6.7/4.0	16.1/6.0	23.0/13.6	42.9/34.8			

Significant differences between: A = I–II; B = I–III; C = I–IV; D = II–III; E = II–IV; F = III–IV.
Internal dropout between 1.2–6.5%.
[a] Kruskal–Wallis one-way analysis of variance test.
[b] Mann–Whitney U test.

Table 4
Description and Comparison Between the Four Age Groups and Those Reporting Pain and No Pain Regarding Common Complaints and Quality of Life (SF-12)

	Age 75–79 (I) Pain n = 404 No Pain n = 723	Age 80–84 (II) Pain n = 490 No Pain n = 854	Age 85–89 (III) Pain n = 382 No Pain n = 506	Age 90+ (IV) Pain n = 378 No Pain n = 356	P-value Between Age Groups (Pain)	P-value Between Age Groups (No Pain)	P-value (Pain vs. No pain) Within Age Group I/II/III/IV
Fatigue (Pain/No pain) %							
Yes, a little	25.7/10.0	33.9/13.9	28.3/16.0	29.6/18.3	<0.001[a]	<0.001[a]	<0.001/<0.001/<0.001/<0.001[b]
Yes, rather much	11.9/4.4	13.9/5.7	16.2/8.7	17.5/11.2	A–C, E, F	A–F	
Yes, very much	8.2/2.1	9.2/2.2	13.6/4.9	19.8/8.4			
Sleeping problems (Pain/No pain) %							
Yes, a little	34.4/18.1	32.7/19.7	33.5/24.3	34.9/18.0	0.02[a]	0.07[a]	<0.001/<0.001/<0.001/<0.001[b]
Yes, rather much	12.6/6.8	12.0/6.3	13.9/7.7	16.4/8.1	C, E		
Yes, very much	9.9/3.5	11.2/3.5	9.7/3.6	13.5/4.8			
Depressed mood (Pain/No pain) %							
Yes, a little	26.2/9.1	32.7/10.2	29.3/11.9	34.7/12.4	<0.001[a]	<0.003[a]	<0.001/<0.001/<0.001/<0.001[b]
Yes, rather much	7.9/2.5	7.3/2.6	8.6/2.4	10.8/3.7	C, E	C, E	
Yes, very much	4.2/1.0	4.1/0.8	6.3/2.4	7.9/3.9			
PCS (Pain/No pain) mean (SD)[c]	35.5 (10.8)/44.8 (10.5)	32.6 (10.2)/41.7 (11.1)	30.5 (9.7)/38.5 (11.6)	28.1 (7.6)/34.1 (10.2)	<0.001[a] A–F	<0.001[a] A–F	<0.001/<0.001/<0.001/<0.001[b]
MCS (Pain/No pain) mean (SD)[c]	49.4 (11.4)/53.3 (10.2)	47.3 (12.1)/52.3 (10.1)	47.5 (12.3)/50.8 (11.6)	46.3 (12.9)/49.5 (11.3)	<0.001[a] C	<0.001[a] B, C, E	<0.001/<0.001/<0.001/<0.002[b]

Significant differences between: A = I–II; B = I–III; C = I–IV; D = II–III; E = II–IV; F = III–IV.
[a] Kruskal–Wallis one-way analysis of variance test.
[b] Mann–Whitney test.
[c] Internal dropout between 10.9–15.5%.

Table 5
Logistic Regression Analysis of Variables Associated with Pain Among Older People Aged 75+

Final Model	OR	95% CI for OR	P-value
Walking problems			
little	2.262	1.827–2.802	<0.001
rather much	2.708	2.026–3.618	<0.001
very much	2.894	2.070–4.045	<0.001
Mobility problems			
little	2.165	1.722–2.723	<0.001
rather much	1.674	1.208–2.320	0.002
very much	1.747	1.195–2.555	0.004
Fatigue			
little	1.486	1.199–1.842	<0.001
very much	1.744	1.178–2.582	0.005
Sleeping problems			
little	1.796	1.471–2.194	<0.001
rather much	1.588	1.192–2.116	0.002
very much	1.633	1.144–2.332	0.007
Depressed mood			
little	2.286	1.805–2.894	<0.001
rather much	2.602	1.716–3.945	<0.001
very much	2.901	1.656–5.080	<0.001
PCS (SF-12)	0.954	0.945–0.964	<0.001
MCS (SF-12)	1.019	1.010–1.028	<0.001

Variables entered in the regression analysis: marital status, living conditions, living status, walking problems, mobility problems, help with PADL, help with IADL, fatigue, sleeping problems, depressed mood, PCS (SF-12), MCS (SF-12).

(Table 5). Pain was entered as the dependent variable (dichotomized as 0 = no pain, 1 = pain). Marital status, living conditions, living status, walking problems, mobility problems, help with PADL, help with IADL, fatigue, sleeping problems, depressed mood, and QOL (SF-12) were entered as independent variables according to the criteria that they showed significant differences between those in pain and those without. Married, no help with PADL/IADL, no, not at all (regarding walking and mobility problems, fatigue, sleeping problems, depressed mood) were used as references to variables of ordinal scale type. The regression analysis was performed controlling for age and sex. The Hosmer and Lemeshow goodness of fit test[24] showed no significant differences between predicted and observed values ($P = 0.07$).

Internal consistency of SF-12 (PCS and MCS) was calculated using Cronbach's alpha.[26] SF-12 was supported by acceptable internal consistency in both PCS (alpha = 0.85) and MCS (alpha = 0.76). The data were computerized and analyzed using SPSS for Windows 10.1.[27]

Results

The overall prevalence of pain in the study was 40.4% and about 20% reported "rather much" or "very much" pain. The prevalence of pain was significantly higher ($P < 0.001$) across the age groups. In the 75–79 age group, 34.1% reported pain; in the 80–84 group, 34.5% had pain; in the 85–89 group, 41.5% had pain; and in the 90+ group, 50.1% had pain. "Rather much" or "very much" pain was reported in 15% of those aged 75–79, 18% of those aged 80–84, 22% of those aged 85–89, and 28% of those aged 90+.

Across Age Groups

The number of people in sheltered housing was larger with higher age (Table 1), just like the number living alone (Table 2). Social network tended to weaken only in terms of siblings, whereas having someone to trust was similar with age in both those with pain and without pain, like the number of children/grandchildren. The number of people to trust tended to be larger ($P = 0.035$) with age among those in pain (Table 2). The economic situation was found to be similar across the age groups (Table 1).

Comparison across age groups in the group reporting pain and the groups without pain showed significantly higher prevalence in all complaints (except sleeping problems) and the need for help for daily living with higher age (Tables 3 and 4). Sleeping problems were significantly more prevalent with higher age in the "pain group," while no differences were found in the groups not in pain (Table 4).

Within Age Groups (Pain vs. No Pain)

No significant differences were found in age, marital status, living status, having children, having grandchildren, number of children or grandchildren, having siblings, or having someone to trust, and how many to trust when comparing those in pain with those without pain between each age group (Tables 1 and 2). Differences between those in pain and those without were found only in the oldest age group (90+), where more ($P < 0.008$) women were found in the pain group (Table 1). No significant differences were found in age groups

75–79, 80–84, and 90+ regarding living conditions. However, significantly ($P < 0.002$) more people in pain lived in sheltered housing in the age group 85–89 (Table 1). Those reporting pain showed significantly lower economic assets in the age groups 80–84 ($P < 0.006$) and 90+ ($P < 0.001$) than those not in pain (Table 1).

Walking problems, mobility problems, fatigue, sleeping problems, and depressed mood were significantly more common ($P < 0.016$–$P < 0.001$) in those with pain compared to those not in pain in all age groups (Tables 3 and 4). Those reporting pain were also significantly more dependent of help for their daily living (PADL, IADL) and had lower QOL in PCS ($P < 0.001$) and MCS ($P < 0.001$) in all age groups than those without pain (Tables 3 and 4).

Variables Associated With Pain

The regression analysis showed that pain was significantly associated with walking problems, mobility problems, fatigue, sleeping problems, depressed mood, and QOL (Table 5). Walking problems were found to be associated with pain with an odds ratio between 2.3 and 2.9, mobility problems between 1.7 and 2.2, fatigue 1.5–1.7, sleeping problems 1.6–1.8, depressed mood 2.3–2.9, and SF-12 0.95–1.02 (Table 5).

Discussion

Pain was common among older people and the prevalence as well as the degree of pain became higher with higher age. There were no major differences in social network, either with higher age or between those in pain and those without. Functional limitations became more prevalent, as did the need for help for daily living, fatigue, and depressed mood in older age groups, while sleeping problems became more common only among those in pain. Quality of life, especially physical health, was significantly lower with higher age. Those in pain had more functional limitations, fatigue, sleeping problems, and depressed mood and needed more help for their daily living than those not in pain. The regression analysis revealed that pain and walking problems, mobility problems, fatigue, sleeping problems, depressed mood, and QOL were significantly associated.

Data quality may decline with age.[28,29] Not only may older respondents refuse to participate in surveys at a higher rate (external dropout), but they are also more likely to not answer certain questions (internal dropout). These findings are, however, not conclusive and results from various studies are conflicting. Both external and internal dropout were found in this study. The external dropout may not affect the power in the analysis, but the ability to generalize the results to the population is reduced. Those not participating (nonresponders and missing) were found to be significantly older and to have a significantly higher share of women. The non-responders were mostly the oldest old and, therefore, may also be too tired or too sick to participate. In fact, 6% of those who did not report any reason for not participating died within six months after the questionnaire was sent to them. The study may, thus, describe the situation for the younger and healthier old rather than describing the situation for the oldest old and most frail. Thus, the result most likely gives a skewed positive view of older people in pain.

Confounding factors could be of major concern for the internal validity of a study of this kind. The regression analysis was, therefore, performed controlling for age and sex to minimize the risk of confounding influence from these variables. Another threat to internal validity could be that the respondents were asked to state their degree of complaints during the last three months. These variables were measured only by one question each, and a single item may not fully describe the nature of that specific problem. The aim of this study was, however, not to go into depth with pain but to get a broad view of its presence and concomitants among older people. Further research is needed to elucidate the nature of these complaints.

The prevalence, as well as the severity, of pain became more common and worse with higher age. This was so especially among the oldest old (85+), compared with those aged 75–84. The highest prevalence (50%) was found in the oldest age group (90+). In the review by Helme and Gibson,[1] pain prevalence was 29–86% for those aged 75–86 years and 40–79% for those aged 85 years and above. Thus, the results in this study supported those of previous studies[5,6]—that pain is common in old age and

that pain is more common with higher age. The lower prevalence in this study compared to other studies could be explained by a relatively high drop-out rate, leading to missing data from the most frail. This is, however, contradicted by the fact that a large number of the oldest old (aged up to 105) were included and this can be considered its strength. The differences in prevalence could also be due to the measures used. The results do strongly emphasize that measures are needed in every day care to identify those in pain and be able to deal with this problem (pain).

The findings indicate that pain should not be treated as an isolated problem. Several other complaints need to be considered in the care of older people in pain. For instance, the need for help to manage daily living and functional limitations was found to be more prevalent across age groups (Table 3), and this could be a result of the normal aging or diseases. However, functional limitations and the need for help in daily living were more common for those in pain than those without pain, especially among the oldest old. Functional limitations were shown in previous studies not only to increase with age,[4] but also to be more common among those in pain.[16,17] With higher age, fatigue, sleeping problems, and depressed mood also tend to be more prevalent and even more so among the elderly in pain (Table 4). Previous studies[11-16] report similar results. These complaints may well be interrelated (e.g., pain may lead to functional limitations and sleeping problems, which may in turn lead to fatigue and depressed mood, and finally altogether contribute to even more pain). The regression analysis showed that pain was associated with all the variables mentioned above (Table 5), supporting the conclusion about a possible interrelationship. Thus, a comprehensive assessment must be applied in the care of elderly people, that is, all factors that possibly interact with pain must be considered. Then interventions could be applied in a broader perspective.

The findings suggested that lowered QOL was not merely related to older age. It was also strongly related to being affected by pain (Table 4). When compared with the norms for SF-12 scores for the general Swedish population aged 75 and above,[22] scores (both PCS and MCS) in this study were lower in all age groups with or without pain, except for those without pain and

aged 75–84. QOL has been found in previous studies to be lower among those in pain compared to those without.[15,30] The lower scores in QOL with higher age may not only be explained by age per se but also by the impact of the different complaints that may follow with increased age. This further emphasizes the need for a broader approach to older people and especially the oldest old to improve or at least maintain their QOL. Problems that must be assessed and managed include functional limitations, fatigue, sleeping problems, and depressed mood, all of these related to pain and probably also contributing to low QOL.

The share of those living alone grew with age, although the social network tended to be similar across age groups (Tables 1 and 2). In contrast, other studies have shown that social network/support may be weaker, especially among the oldest old, with increasing age[31,32] and hence the potential moderating influence on pain from the social network/support is not there anymore.[30,33,34] People in the social network can not only be supportive and help to manage daily life, but could also be helpful in identifying problems (e.g., pain) and in obtaining help. The oldest old (85+) in pain, in this study, were more often found to live in sheltered housing. It is noteworthy that people in sheltered housing or residential care were more likely to be in pain. They receive professional care and should perhaps be more likely to get help than those living alone with no help. However, studies have shown that professionals who care for elderly people tend to underestimate the care receiver's pain, with the result that these older people are affected by pain, although it is recognized by the care providers.[35] Those at most risk of insufficient pain relief and lowered QOL might, therefore, be those living in sheltered housing, but those living at home alone, especially with a weak social network/support, might also be at risk of insufficient pain relief.

Conclusion

Attention must be paid to the old and especially the oldest old regarding pain, walking problems, mobility problems, fatigue, sleeping problems, and depressed mood, especially among those in pain. The prevalence of pain

proved to be higher with age, and all complaints were more common with higher age and especially among those in pain. This suggests that pain, at least among the elderly, is part of a problem complex that needs to be assessed and intervened against in daily medical and nursing care. This is further emphasized by the finding that quality of life was lower with higher age and more so among those in pain. Health care staff involved in geriatric nursing care must be aware of the importance of comprehensive assessment and interventions to help older people maintain a satisfactory quality of life.

Acknowledgments

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